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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/605,812	06/28/2000	Steven R. Chalmer	EMS-00801	5356

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EXAMINER	
TO, JENNIFER N	

ART UNIT	PAPER NUMBER
2195	

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/605,812	CHALMER ET AL.	
	Examiner	Art Unit	
	Jennifer N. To	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-14,16-20,22-31,33 and 34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-14,16-20,22-31,33 and 34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-3, 5-14, 16-20, 22-31, and 33-34 are pending for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 9-10, 16-17, 26-27, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deng et al. (hereafter Deng) ("Scheduling Real-Time Applications in an Open Environment", IEEE, 1997, pages 308-319).

4. As per claim 9, Deng teaches the invention substantially as claimed including a method of scheduling tasks in a multitasking operating system, comprising:

using a first scheduler to schedule tasks (fig. 1; page 308, introduction section);

choosing a second scheduler from a plurality of schedulers, wherein at least one of the plurality of schedulers selects processes to be run from a plurality of run-able processes different from the plurality of schedulers and wherein choosing the second scheduler is based on parameters that vary according to run time conditions (fig. 1; page 308, introduction section; page 309, open system architecture section; page 310, scheduling hierarchy section; page 312, schedule-ability condition of real-time applications in open system section).

5. Deng did not specifically teach switching, during run time, from using the first scheduler to schedule tasks to using the second scheduler to schedule tasks.

6. However, Deng disclosed the step of the OS scheduler chooses the server type (each server has a scheduler associated with it, which call server scheduler), and changes (switches) all the server type of all the servers to correspond to the chosen server type (fig. 5; page 310, scheduling hierarchy section; page 315, acceptance test and admission of new applications section).

7. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have recognized that Deng teaching of changing form one server scheduler to another based on the run time condition is functional equivalent as switching, during run time, from using the first scheduler to schedule tasks to using the second scheduler to schedule tasks. Therefore, one would be motivated to utilize Deng's system for scheduling independently developed real-time applications with non-real-time applications in an open system (Deng, abstract).

8. As per claim 10, Deng teaches that wherein choosing the second scheduler is performed by setting up a return from exception that causes the scheduler to execute (fig. 2; page 310, scheduling architecture section).

9. As per claim 16, Deng teaches that wherein at least one of the schedulers is for statistical code profiling (fig. 2; page 310, scheduling architecture section).

10. As per claim 17, Deng further teaches that wherein the first scheduler is for startup conditions and the second scheduler is for steady state operation (fig. 2; page 310, scheduling architecture section).

11. As per claims 26-27, and 33-34, they are rejected for the same reason as claims 9-10, and 16-17 above.

12. Claims 1-8, 11-14, 18-20, 22-25, and 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deng et al. (hereafter Deng) ("Scheduling Real-Time Applications in an Open Environment", IEEE, 1997, pages 308-319), as applied in claim 9 above, and in view of Perotto et al. (hereafter Perotto) (U.S. Patent No. 5630130).

13. Perotto was cited in the previous office action.

14. As per claim 1, Deng teaches the invention substantially as claimed including a method of scheduling tasks in a multitasking operating system, comprising:

using a first scheduler to schedule tasks (fig. 1; page 308, introduction section);

choosing a second scheduler from a plurality of schedulers, wherein at least one of the plurality of schedulers selects processes to be run from a plurality of run-able

processes different from the plurality of schedulers and wherein choosing the second scheduler is based on parameters that vary according to run time conditions (fig. 1; page 308, introduction section; page 309, open system architecture section; page 310, scheduling hierarchy section; page 312, schedule-ability condition of real-time applications in open system section).

15. Deng did not specifically teach switching, during run time, from using the first scheduler to schedule tasks to using the second scheduler to schedule tasks.

16. However, Deng disclosed the step of the OS scheduler chooses the server type (each server has a scheduler associated with it, which call server scheduler), and changes (switches) all the server type of all the servers to correspond to the chosen server type (fig. 5; page 310, scheduling hierarchy section; page 315, acceptance test and admission of new applications section).

17. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have recognized that Deng teaching of changing form one server scheduler to another based on the run time condition is functional equivalent as switching, during run time, from using the first scheduler to schedule tasks to using the second scheduler to schedule tasks. Therefore, one would be motivated to utilize Deng's system for scheduling independently developed real-time applications with non-real-time applications in an open system (Deng, abstract).

18. Deng did not specifically teach the step setting a program counter to an address corresponds to code of the second scheduler.

19. However, Perotto teaches the step setting a program counter to an address corresponds to code of the second scheduler (col. 4, lines 1-10).

20. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Deng and Perotto because Perotto teaching of setting a program counter to an address corresponds to code of the second scheduler would improved the integrity of Deng's system by using a counter to keep track of the number of programs on each processor lead to maximize the number of tasks on each process.

21. As per claim 2, Perotto further teaches:

setting a stack pointer to an address corresponding to stact space for the second scheduler (col. 7, lines 21-40); and

the processor using the stack space at the stack pointer after executing code at the address corresponding to the program counter (col. 7, lines 21-40).

22. As per claim 3, Perotto teaches that wherein all of the schedulers use the same stack (col. 7, lines 40-44).

23. As per claim 5, Deng teaches that wherein at least one of the schedulers is for statistical code profiling (fig. 2; page 310, scheduling architecture section).

24. As per claim 6, Deng further teaches that wherein the first scheduler is for startup conditions and the second scheduler is for steady state operation (fig. 2; page 310, scheduling architecture section).

25. As per claim 7, Deng teaches that wherein choosing the second scheduler is performed by setting up a return from exception that causes the scheduler to execute (fig. 2; page 310, scheduling architecture section).

26. As per claim 8, Perotto teaches that wherein setting a program counter includes modifying a variable that is modified according to the second scheduler that is chosen (col. 4, lines 1-20).

27. As per claim 11, Deng teaches the invention substantially as claimed in claim 9. Deng did not specifically teach the step setting a program counter to an address corresponds to code of the second scheduler.

28. However, Perotto teaches the step setting a program counter to an address corresponds to code of the second scheduler (col. 4, lines 1-10).

29. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Deng and Perotto because Perotto teaching of setting a program counter to an address corresponds to code of the second scheduler would improved the integrity of Deng's system by using a counter to keep track of the number of programs on each processor lead to maximize the number of tasks on each process.

30. As per claim 12, Perotto teaches that wherein setting a program counter includes modifying a variable that is modified according to the second scheduler that is chosen (col. 4, lines 1-20).

31. As per claim 13, Perotto further teaches:

setting a stack pointer to an address corresponding to stact space for the second scheduler (col. 7, lines 21-40); and

the processor using the stack space at the stack pointer after executing code at the address corresponding to the program counter (col. 7, lines 21-40).

32. As per claim 14, Perotto teaches that wherein all of the schedulers use the same stack (col. 7, lines 40-44).

33. As per claims 18-20, 22-25, and 28-31, they are rejected for the same reason as claims 1-8, and 11-14 above.

Response to Arguments

34. Applicant's arguments with respect to claims 1-3, 5-14, 16-20, 22-31, and 33-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

35. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Predko (U.S. Patent No. 6088787) teaches an enhanced program counter stack for multi-tasking.

36. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

37. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer N. To whose telephone number is (571) 272-7212. The examiner can normally be reached on M-T 6AM- 3:30 PM, F 6AM- 2:30 PM.

38. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

39. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer N. To
Examiner
Art Unit 2195

SUPERVISORY PATENT EXAMINER
TC 2100